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Application No.: 10/041,558
Inventor: Burst et al.
Reply to Office Action of March 2, 2006
Docket No.: 52097

REMARKS/ARGUMENTS

Claim Rejections under 35 USC § 102

The Examiner rejected claims 1, 6, 9, 10 and 13 under 35 USC § 102 as being anticipated by Perry (Chemical Engineers Handbook).

A printed publication anticipates a claim under §102(b) only if "each and every [claim] limitation is found either expressly or inherently in a single prior art reference." *Celeritas Techs. Ltd. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998). In other words, a printed publication must include all the "limitations," i.e., defining features of the claim, as those limitations are arranged in the claim. *See, e.g., Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Merely identifying within the prior art all of the various parts of the claimed subject matter is not anticipation. Instead, "[t]here must be *no difference* between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991) (emphasis added).

In the instant case, Applicants respectfully submit that Perry does not disclose each and every element of claim 1, as arranged, to maintain a rejection under 35 USC §102(b).

Applicants respectfully submit that the process of Perry is schematically described in FIG. 13-44 and includes the following steps:

1. Aqueous alcohol is introduced into separation column D. In this column, water is separated as a bottom product, whereas the top product is the azeotropic mixture of ethanol and water (96% by weight of ethanol, 4% by weight of water, B.P. 78.2° C).

2. The azeotropic mixture is introduced into column A.

3. Benzene is added to the azeotropic mixture at the top section of column A.

4. The distillation process of column A yields the following products: (i) pure ethanol; which is obtained as a bottom product and (ii) a ternary azeotropic mixture composed of 18.5% by weight of ethanol, 74.1% by weight of benzene and 7.4% by weight of water as overhead product.

In relation to the instant claimed invention, then, Perry arguably describes a process wherein an A, B containing azeotrope mixture (A = water, B = ethanol) is mixed with an auxiliary H (H = Benzene), which leads to the formation of Pure B (ethanol) and a ternary azeotrope mixture ABH (water, ethanol and benzene) as overhead product.

By contrast, according to instant claim 1, A, B and H form two binary azeotropes, AH and BH. In addition thereto, H is theoretically capable of forming a ternary azeotrope with A and B. Also, in the process of instant claim 1, the AH and BH containing fractions are isolated; that is, pure A or pure B are not formed. In contrast, Perry discloses the isolation of pure B (ethanol) and the formation of a tertnary azeotrope.

Accordingly, because Perry does not disclose the formation of two binary azeotropes AH and BH as recited in claim 1, and discloses the formation of Pure B and a ternary azeotrope mixture, Perry fails to anticipate claim 1 and those claims depending therefrom. In view thereof, the rejection should be reversed.

Claim Rejections under 35 USC § 103

The Examiner rejected claims 3, 7, 8, 11 and 15 under 35 USC § 103 as being obvious in view of Perry.

At the outset, Applicants respectfully submit that each of claims 3, 7, 8, 11 and 15 depend from nonobvious claim 1 such that by virtue of their dependency therefrom, they are also nonobvious.

Notwithstanding the above, it should be further appreciated that there is no teaching, suggestion or motivation to modify Perry to arrive at the process(es) of claims 3, 7, 8, 11 and 15. Indeed, according to the instant invention, it is generally desirous to avoid the formation of the ternary azeotrope ABH because such formation can negatively affect successful separation (See page 5, lines 21-33). This is accomplished by introducing at least a part of the auxiliary H at the top and/or the upper region of a column, as described in the Applicant's examples. While Perry describes introducing Benzene via a top region of a distillation column, Perry nonetheless, discloses the formation of ternary azeotropes.

Also, an advantage of the claimed process(es) is that they generally require fewer separation columns when compared with the processes described by Perry (See Fig. 13-44). Indeed, in Perry, because the overhead product of column A is a ternary azeotrope, in order to isolate the second product (water), a second column (column D) is required.

Accordingly, a person having ordinary skill in the art at the time the invention was made would not have been motivated to modify Perry and choose the auxiliary H so that it formed two binary azeotropes with the components to be separated and/or recognize that its introduction at the top region of the column prevented the formation of a ternary azeotrope. Likewise, specifically with regard to claim 11, one having skill in the art would not have recognized from Perry that the use of water as auxiliary H did not lead to the formation of a ternary azeotrope.

For the reasons set forth above, the rejection should be reversed.

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Conclusion

Applicants respectfully submit that the present application is in condition for allowance, which action is courteously requested. Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 14-1437. Please credit any excess fees to such deposit account.

Respectfully submitted,

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